

Oklahoma and the interior of Texas, but a slower movement of the disturbance in front of the high-pressure area retarded the fall in temperature over Louisiana, Arkansas, and the southeastern portion of East Texas.

Cold-wave and livestock warnings were issued on the morning of the 25th for Oklahoma and the northwestern portion of Texas and were extended over the district on the night of the 25th and during the 26th. Snow warnings were issued for the northern portion of the district. A severe cold wave overspread the district during the 26th and 27th and snow fell over the northern portion.

No cold wave occurred without warning. Timely warnings were issued for freezing near the coast.

Storm warnings were displayed on the Texas coast on the 16th and 26th, and small-craft warnings on the Louisiana coast on the 27th, and winds occurred which justified the warnings. No general storm occurred on the coast without warning.—*I. M. Cline.*

DENVER FORECAST DISTRICT

A storm attended by general precipitation advanced from the North Pacific coast southeastward across the Rocky Mountain Plateau to the west Gulf sections during the period from the 13th to the 16th; and a more moderate low, accompanied by light though general snow or rain, moved eastward from northern California to Wyoming and thence southward and southeastward during the 24th–26th. Throughout about all of the remainder of the month high pressures prevailed over the middle and southern plateau sections, with a succession of disturbances passing to the northward and eastward of the district, and precipitation in appreciable amounts was infrequent, except in northwestern Utah. Temperatures were generally much below normal until the 18th, with especially cold weather on the western slope of Colorado, which continued until the 23d.

Cold-wave warnings, which as a rule were verified, were issued as follows: 15th, moderate cold wave in western Colorado, northern New Mexico, northern Arizona, and southern Utah; 21st, moderate cold wave in southeastern Arizona; 25th, moderate cold wave in southeastern Colorado and extreme eastern New Mexico; 26th, moderate cold wave in southeastern New Mexico and eastern and central Arizona; 28th, severe cold wave in eastern and central Colorado, and a moderate cold wave in extreme eastern New Mexico.

On the 14th, when snow, probably heavy, followed by much colder weather, was forecast, advices were issued to livestock interests in western Colorado, northwestern New Mexico, northeastern Arizona, and southeastern Utah. The warning was verified. On the 28th, when light snow, with a severe cold wave, was indicated, the same interests in eastern Colorado were advised. The warning was only partly verified.

Frost warnings which were generally justified were issued for southern Arizona on the 1st and 2d; for south-central and southeastern Arizona on the 3d; south-central Arizona on the 4th, and extreme southwestern Arizona on the 7th, 10th, 12th, 14th, 17th, 19th, 21st, and 26th.

Warnings of freezing temperature, which also were generally verified, were issued for Arizona as follows: Southeastern, on the 4th; southern, on the 11th, 15th, 16th, and 18th; south-central and southeastern, on the 12th, 14th, 17th, 21st, and 26th.—*J. M. Sherier.*

SAN FRANCISCO FORECAST DISTRICT

The month was characterized by frequent rains over the Pacific Northwestern States and by deficient rains over California and Nevada. The rains over the northern portion of this district were attendant on the frequent and in most instances shallow depressions that crossed the coast line north of the mouth of the Columbia River. These averaged approximately fifteen in number, or one every other day, and after moving inland passed eastward, and rarely brought the southern part of this forecast district under their influence. This resulted in an increased deficit in the seasonal rainfall for California and Nevada.

In California at the end of the month the season of rains was half over, and the rainfall was then below normal for the season except in the San Francisco Bay region. The following table for regular Weather Bureau stations gives the precipitation for the season to date, the normal seasonal precipitation to date, and the seasonal rainfall for the preceding season to the same date:

Stations	Seasonal rainfall to date	Normal rainfall to date	Seasonal rainfall to date last year
	Inches	Inches	Inches
Eureka.....	22.59	24.52	13.88
Red Bluff.....	11.04	14.02	8.46
Sacramento.....	8.30	10.81	4.44
San Francisco.....	13.48	12.63	6.06
San Jose.....	5.72	9.10	3.63
Fresno.....	3.93	5.15	1.50
San Luis Obispo.....	6.69	10.50	3.33
Los Angeles.....	3.05	8.05	1.79
San Diego.....	2.32	5.17	2.48

Much apprehension is felt concerning the probable shortage of precipitation during the current season, following two years of deficient rainfall and snowfall. The fact that on a number of occasions when isobaric types that usually portend rain generally over the State passed eastward without appreciable rainfall, adds to the feeling of apprehension that the latter half of the season of rains will not likely bring the precipitation for the season up to normal. The deficit in rainfall for the season is notable over the southern part of the State, where it generally is less than during the preceding season.

The district forecaster was called on to forecast snows on a number of dates for the interior of the States of Washington and Oregon and for Idaho. Storm warnings were displayed on a number of dates for sections of the coast north of the San Francisco Bay region, and the majority of these were followed by winds of gale force, except on the Puget Sound, where the topography is such that rarely do the gales commonly experienced on the coast extend over this inland body of water. No cold-wave warnings were ordered, but warnings of frosts and freezing temperature were issued on a number of days during the first half of the month for the interior of California. The frost-warning service in the citrus regions of the southern part of the State was carried on in a very efficient and effective manner during a season calling for frequent firings to protect fruit and trees. The damage in orchards not protected has been considerable, while in the orchards that were properly fired the loss of fruit was inconsiderable.—*E. H. Bowie.*